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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/590,211	06/08/2000	Guy A. Roulgau	3028.1000-000	9680

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EXAMINER	
WOITACH, JOSEPH T	
ART UNIT	PAPER NUMBER
1632	

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Please find below and/or attached an Office communication concerning this application or proceeding.

File

Office Action Summary

Application No.	Applicant(s)
09/590,211	Rouleau et al.
Examiner	**Art Unit**
Joseph Woitach	1632

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Sep 20, 2002*.

2a) ☐ This action is **FINAL.** 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1, 3-9, 11-17, and 19-39* is/are pending in the application.

4a) Of the above, claim(s) *19-30 and 33-36* is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1, 3-9, 11-17, 31, 32, and 37-39* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☒ None of:

1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 13
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

This application is a continuation of PCT/CA98/01133, filed December 7, 1998 which claims benefit to foreign application 2 218 199, filed December 9, 1997 in Canada.

Applicants' amendment filed September 20, 2002, paper number 13, has been received and entered. The specification has been amended. Claims 2, 10 and 18 have been amended. Claims 1, 3, 5, 9, 11, 13, 16, 17, 31 and 32 have been amended. Claims 37-39 have been added. Claims 1, 3-9, 11-17 and 19-39 are pending.

Election/Restriction

Applicant's election of Group I, claims 1-18, 31 and 32, in Paper No. 10 was acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election **without** traverse (MPEP § 818.03(a)). Claims 19-30 and 32-36 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Claims 1, 3-9, 11-17, 31, 32 and 37-39 are currently under examination.

Priority

It is noted that Applicants indicate that the instant application is a continuation of PCT/CA98/01133, filed December 7, 1998, and claims benefit to foreign application 2 218 199, filed December 9, 1997 in Canada. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Canada on December 9, 1997. It is noted, however, that applicant has not filed a certified copy of the Canadian application as required by 35 U.S.C. 119(b) in the instant application nor acknowledged the presence of the priority document in another application.

Accordingly, the present application is not accorded priority to the foreign application.

Information Disclosure Statement

The resubmitted IDS, attached as Exhibits A and B to the amendment filed September 20, 2002, paper number 13, has been received and entered. Examiner apologizes for the earlier miscommunication regarding the IDS. A signed copy of the substitute IDS form is included with this action.

Specification

Applicants' amendment filed September 20, 2002, paper number 14, supplying a substitute sequence listing has been received and entered. The substitute sequence listing is

acceptable, and the application is in sequence compliance. In light of the new sequence listing and amendments to the specification, the objection is withdrawn.

Claim Objections

Claim 32 objected to because the sequence encoding the PABII gene was changed from SEQ ID NO: 3 to SEQ ID NO: 18, however, claim 32 was not amended to reflect this change in SEQ ID NO is withdrawn.

Amendments to the claim has obviated the basis of the objection.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title. .

Claims 9, 11 and 12 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Independent claim 9 simply recites "A nucleic acid comprising" a particular polymorphic repeat. The specification teaches that this sequence is present in nature, in particular in patients with OPMD. Since the claims do not indicate the context of the sequence claimed, the claimed subject matter does not indicate involvement of the hand of man and thus, encompasses a product

of nature. Amending the claims to recite "A**n isolated** nucleic acid sequence" would obviate the basis of the rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 3-8, 31 and 32 stand rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicants summarize the basis of the rejection and argue that the specification describes distinguishing features of the sequences instantly claimed. More specifically, Applicants note that the PABII gene is a highly conserved gene, and in support of there assertion point to a comparison of a short stretch of mouse and human cDNA sequences which share a high amount of homology (see Exhibit C). Applicants argue that in light of the conservation of sequence homology for the PABII gene, one of skill in the art would readily be able to identify what is encompassed by a human PABII gene. See Applicants amendment, pages 15-16. Applicants arguments have been fully considered and found persuasive in part.

First, upon review of the pending claims, it is noted that independent claims 9 (and dependent claims 11 and 12) are drawn to nucleic acid sequences not specifically reciting that the sequence is a "gene" sequence. Therefore, the claims are being interpreted to encompass any polynucleotide sequence including small probes which comprise the GCG polymorphic repeat. In light of claim limitations set forth for the polymorphic GCG repeat of PAB II in these claims Examiner would agree that these claims are not subject to basis of the present rejection for claims encompassing a gene. Therefore, the rejection of claims 9, 11 and 12 is withdrawn.

With respect to sequences specifically encompassing a human gene, Examiner acknowledges that portions of the mouse and the human PABII coding sequences share a high amount of homology, however this is in part the basis of the rejection. Given the two sequences disclosed in Exhibit C, one derived from mouse and one from human, over the stretch of 100% homology the artisan would not be able to distinguish mouse from human. Further, the claims encompass genes comprising allelic variants, however there is no description of other variants besides those comprised by the GCG repeat. Other variants of the specific PABII sequences are not disclosed or generally described, and the artisan would readily recognize whether a potential variant was human or mouse. Further, there is no description of other variants besides the GCG repeat which are associated with a disease in humans. Furthermore, the claims encompass a human PABII gene, however there is no description of the promoters, enhancers or other elements the artisan would recognize to be encompassed by the term "gene". Examiner notes the specific polymorphic GCG repeat in exon 1 of human PABII is adequately described, however

the basis of the rejection focuses on the context in which this sequence is claimed, specifically to encompass a human PABII gene and other allelic variants associated with any disease in a human. Therefore, for the reasons above and of record, it is maintained that specification fails to provide adequate written description of a human PABII gene.

Claims 1, 3-9, 11, 12, 31, and 32 rejected under 35 U.S.C. 112, first paragraph is withdrawn.

Amendments to the claims to recite embodiments which were indicated as fully enabled has obviated the basis of the rejection. It is noted that the product claims have been amended to recite that the sequence is "indicative of a disease in a human patient", which is broader than the specific symptoms previously recited. It is noted that the sequences encompassed by the claims encompass structures which would inherently be associated with any symptom disclosed now or discovered later. However, since OPMD is a disease in humans, the product has one enabled use and fulfills the requirements of 35 USC 112, first paragraph.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1, 3-9, 11 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

First, it is noted that the previous rejections of record are withdrawn. Specifically, amendments to the claims have obviated the basis of each of the specific rejections of record.

Claims 1 and 9 are unclear and confusing in the recitation of "wherein an allelic variant" because it is unclear if the claim encompasses only the polymorphic GCG repeat or if it is drawn to other portions of the PABII gene or additional derivatives of either of these. The metes and bounds of the claims are indefinite because the specific nature of the allele to which the claim refers is not defined. Dependent claims 3-8 and 11-12 are included in the basis of the rejection because they fail to further clarify the basis of the rejection. Amending the claim to recite "wherein said polymorphic repeat of said GCG repeat is indicative of a disease" would obviate the basis of the rejection.

Newly amended claims 5 and 8 are unclear and confusing in the recitation of "wherein in said human patient" (claim 5) and wherein said human patient is heterozygous" (claim 8) because it is unclear how this is related to the claimed isolated gene. It is unclear if the claim attempts to broaden the scope to encompass the gene in a human or is a requirement from where the sequence is obtained, excluding synthetically generated genes.

Newly amended claim 9 recites the limitation "the human PAB II gene" in the preamble of the claim. There is insufficient antecedent basis for this limitation in the claim. The

specification teaches that various allelic variants of a PABII gene may exist and the present invention is drawn generally to variants comprising polymorphic sequences found in exon 1 of the PABII gene which associated with OPMD. The claim fails to clearly indicate to what PABII gene it refers. Dependent claims 11 and 12 are included in the rejection because they fail to further clarify the basis of the rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 9 rejected under 35 U.S.C. 102(b) as being anticipated by Akarsu *et al.* is withdrawn.

Applicants note the differences of the between the sequence disclosed by Akarsu *et al.* and argue that the claim is not anticipated. See Applicants amendment, pages 17-18. Applicants arguments have been fully considered, and found persuasive.

Amendments to the claim to recite a specific polynucleotide sequence has differentiated the instantly claimed sequence from that disclosed in Akarsu *et al.*

Claims 1, 3-9, 11-17, 31, 32 and 37-39 are rejected under 35 U.S.C. 102(a) as being anticipated by Brais *et al.* (IDS AS3-Nature Genetics, 1998) as evidenced by Genebank deposit AF026029.

It is noted that the present application is a continuation of PCT/CA98/01133, filed December 7, 1998, and upon review of the sequences disclosed in PCT/CA98/01133 it is found that SEQ ID NO: 18 is supported. However, because the certified copy of the Canadian application has not been received, the priority of present application is the filing date of the PCT/CA98/01133, filed December 7, 1998.

Brais *et al.* teach that a short GCG repeat in the PABP2 gene is associated with oculopharyngeal muscular dystrophy (OPMD). More specifically, Brais *et al.* disclose a 8kb fragment which comprises a 6002 bp PABP2 structure (page 164, figure 1). This sequence was deposited with Genebank as AF026029 (page 166, bottom of second column) and sequence homology comparisons indicate that the sequence disclosed by Brais *et al.* is the same as SEQ ID NO: 18. With respect to the GCG repeats, Brais *et al.* teaches that 8-13 repeats of GCG in exon 1 are dominant mutations associated with patients diagnosed with OPMD (see summary in Table 1). Further, Brais *et al.* teach that specific repeats are associated with a greater severity in patients symptoms (page 165, middle of first column). Thus, the teaching of Brais *et al.* anticipate the claims.

Conclusion

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Woitach whose telephone number is (703)305-3732.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Reynolds, can be reached at (703)305-4051.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group analyst Dianiece Jacobs whose telephone number is (703) 308-2141.

Papers related to this application may be submitted by facsimile transmission. Papers should be faxed via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CM1 Fax Center numbers are (703)308-4242 and (703)305-3014.

Joseph T. Woitach

DAVE T. NGUYEN
PRIMARY EXAMINER